REMARKS

Claims 1-11 and 13-33 are currently pending in the subject application and are presently under consideration. Claim 10 has been amended herein to include the limitations of allowable claim 12. Accordingly, claim 12 has been cancelled herein. A clean version of all pending claims is found at pages 2-8 of this Reply. A marked-up version showing the amendments made is found at page 12 of this Reply. Applicants' representative acknowledges with appreciation the indicated allowability of claims 13-33. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-5 and 9-11 Under 35 U.S.C. §103(a)

Claims 1-5 and 9-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Takahashi *et al.* in view of McCormick and Pieronek *et al.* It is submitted that this rejection be withdrawn for at least the following reasons. The combination of Takahashi *et al.*, McCormick, and Pieronek *et al.* does not teach or suggest all limitations of the subject claims.

> To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) ***must teach or suggest all the claim limitations***. *See* MPEP §706.02(j). The ***teaching or suggestion to make the claimed combination*** and the reasonable expectation of success ***must both be found in the prior art and not based on applicant's disclosure***. *See In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

In particular, neither Takahashi *et al.*, nor McCormick, nor Pieronek *et al.*, alone or in combination, teach or suggest *each module in the path having a different address* so as to facilitate independent control of armature windings in the path, as recited in claim 1

of the subject application. As conceded by the Examiner, Takahashi *et al.* does not disclose, teach, or suggest a different address for each module. Accordingly, the Examiner relies on Pieronek *et al.* to teach this limitation. However, Pieronek *et al.* merely teaches a plurality of control modules 12 which have addresses and outputs and communicate the status of their outputs via messages on a network (col. 2, ll. 55-61). The control modules 12 of Pieronek *et al.* may have any of a variety of different functions (*e.g.*, disconnect, pushbutton, limit switch, motor starter) and preferably emulate basic electronic components such as are used in industrial control (col. 7, ll. 45-48). Thus, the control modules described in Pieronek *et al.* are not equivalent to the path modules of claim 1. Claim 1 requires that each path module include at least one armature winding; an amplifier coupled to the at least one armature winding; and a module controller coupled to the amplifier. The control modules 12 of Pieronek *et al.* do not include such components. Accordingly, it is submitted that one of ordinary skill in the art would not have been motivated by Pieronek *et al.* to provide each path module with a different address so as to facilitate independent control of armature windings in the path, as required by claim 1.

McCormick does not make up for the aforementioned deficiencies of Takahashi *et al.* and Pieronek *et al.*, as discussed above.

For at least the aforementioned reasons, the subject invention as recited in claim 1 is not obvious over the combination of Takahashi *et al.*, McCormick, and Pieronek *et al.* Claims 2-9 depend from claim 1. Therefore, withdrawal of this rejection and allowance of these claims is respectfully requested.

Claim 10 has been amended herein to include the elements of claim 12, which the Examiner has indicated would be allowable if rewritten to include all the limitations of the base claim and any intervening claims. Accordingly, allowance of claim 10 and claim 11, which depends therefrom, is respectfully requested.

II. Objection of Claims 6-8 and 12

Applicants' representative acknowledges with appreciation the indicated allowability of claims 6-8 and 12 subject to being amended to independent form. As claims 6-8, are directly or indirectly dependent upon independent claim 1, which is now believed to be allowable per the aforementioned reasons, it is believed that claims 6-8 are now also allowable. However, applicants' representative reserve the right to cast claims 6-8 into independent form at a later date, if necessary. Claim 12 has been cancelled herein.

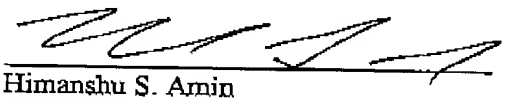
CONCLUSION

The present application is believed to be condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,
AMIN & TUROCY, LLP



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Please cancel claim 12 without prejudice or disclaimer.

Please amend claim 10 as follows:

10. (Amended) A path module for a linear motor, comprising:

a plurality of non-interlaced armature windings;

an amplifier connected to the plurality of armature windings; and

a module controller coupled to the amplifier, the module controller being programmed to control the amplifier to selectively energize the plurality of armature windings based on instructions received from a remote motor controller, the path module being connectable to at least one other path module to define a path,

wherein each armature winding has a unique address to facilitate independent control of each respective armature winding based on instructions from the motor controller addressed to each respective armature winding.

CLEAN VERSION OF ALL PENDING CLAIMS

All pending claims are listed in this section for purposes of clarity, with claims that have been amended identified as such. Claim 12 has been cancelled herein. Claim 10 has been amended herein – the marked up version of these claims is found at page 12 of this Reply.

1. A path module for a linear motor, comprising:

at least one armature winding;

an amplifier connected to the at least one armature winding; and

a module controller coupled to the amplifier, the module controller being operative to control the amplifier to selectively energize the at least one armature winding based on instructions received from a motor controller, the path module being connectable to at least one other path module to define a path, each module in the path having a different address so as to facilitate independent control of armature windings in the path.

2. The path module of claim 1, further comprising a plurality of armature windings, the module controller being operative to control the amplifier to selectively energize each of the plurality of armature windings based on the instructions received from the motor controller.

3. The path module of claim 2, further comprising an amplifier associated with each of the plurality of armature windings in the path module, each amplifier being operative to control energization of an associated armature winding in the path module based on control information from the module controller.

4. The path module of claim 3, wherein each armature winding has a unique address to facilitate independent control of each respective armature winding based on instructions received from a the motor controller addressed to each respective armature winding.

5. The path module of claim 1, further comprising a plurality of the path modules connected together, the at least one armature winding in each of the plurality of path modules being arranged so as to define the path, the armature windings in the path being independently addressable through each associated module controller, such that independent control of the armature windings is facilitated.

6. The path module of claim 1, further comprising an encoder sensor operative to provide an output signal to a communications link indicative of at least one of incremental and absolute changes in position of a stage relative to the path module.

7. The path module of claim 6, wherein the encoder sensor further comprises a magnetic encoder sensor responsive to an encoder magnet of a stage, the encoder magnet having an effective length.

8. The path module of claim 7, wherein the path module is connectable to an adjacent path module having at least one encoder sensor, such that when the path module is connected to the adjacent path module, the at least one encoder sensor of the path module and the at least one sensor of the adjacent path module are separated by no more than the effective length.

9. The path module of claim 1, further comprising at least one sensor operative to sense a condition of the path module and provide a signal indicative of the sensed condition to the module controller.

10. (Amended) A path module for a linear motor, comprising:

a plurality of non-interlaced armature windings;

an amplifier connected to the plurality of armature windings; and

a module controller coupled to the amplifier, the module controller being programmed to control the amplifier to selectively energize the plurality of armature

windings based on instructions received from a remote motor controller, the path module being connectable to at least one other path module to define a path,

wherein each armature winding has a unique address to facilitate independent control of each respective armature winding based on instructions from the motor controller addressed to each respective armature winding.

11. The path module of claim 10, further comprising an amplifier associated with each of the plurality of armature windings in the path module, each amplifier being operative to control energization of an associated one of the plurality of armature windings based on control information from the module controller.

13. A linear motor system, comprising:

a plurality of path modules, each of the plurality of path modules comprising:

at least one armature winding;

an amplifier connected to the at least one armature winding; and

a module controller associated with the amplifier and operative to control the amplifier to selectively energize the at least one armature winding based on control instructions via a communications link;

each of the plurality of path modules being connected to at least one adjacent path module to define a path;

a stage moveable along the path; and

wherein the module controller of each of the plurality of path modules is operative to receive respective control instructions via the communications link, the module controller of each of the plurality of path modules further being operative to control an associated amplifier to selectively energize the at least one armature winding associated therewith based on the control instructions received by the associated module controller so as to effect movement of the stage along the path.

14. The system of claim 13, wherein the at least one armature winding further comprises a plurality of armature windings, the module controller of each of the plurality of path modules being operative to control each respective amplifier to selectively energize each of the plurality of armature windings based on the control instructions received by the associated module controller.

15. The system of claim 14, wherein the module controller of each of the plurality of path modules further comprises an amplifier associated with each of the plurality of armature windings in the associated path module, each amplifier being operative to control energization of an associated armature winding.

16. The system of claim 13, further comprising a system controller operative to provide the control instructions to each of the plurality of path modules via the communications link so as to control the at least one armature winding associated with each of the plurality of path modules.

17. The system of claim 16, wherein the communications link employs an addressable communications protocol in which each of the plurality of path modules in the path has a different address, the system controller providing the control instructions according to the address of each of the plurality of path modules.

18. The system of claim 16, wherein each armature winding in the path has a different address, the system controller utilizing the address of each of the armature windings in the path to effect substantially independent control of the armature windings.

19. The system of claim 18, wherein the at least one armature winding further comprises a plurality of armature windings, the module controller of each of the plurality of path modules being operative to control each respective amplifier to selectively energize each of the plurality of armature windings based on the address associated with control instructions received by the respective module controller.

20. The system of claim 19, wherein the module controller of each of the plurality of path modules further comprises an amplifier associated with each of the plurality of armature windings in respective path module, each amplifier being operative to control energization of an associated armature winding.

21. The system of claim 16, wherein the system controller is operative to receive encoder data indicative at least one of incremental and absolute changes in position of the stage relative the path, the system controller providing the control instructions based on the encoder data.

22. The system of claim 21, further comprising at least one receiver coupled to the system controller, the at least one receiver being operative to receive a wireless signal having at least some of the encoder data.

23. The system of claim 13, wherein at least some of the plurality of path modules further comprise at least one sensor operative to sense a condition of the respective path module and provide sensor data indicative of the sensed condition via the communications link.

24. The system of claim 23, further comprising a computer coupled to the communications link and operative to collect the sensor data.

25. The system of claim 24, wherein the computer further comprises computer executable instructions to analyze operating characteristics of the linear motor system based on the sensor data and provide an indication of the operating characteristics.

26. A path module for a linear motor, comprising:

field means for providing an electric field;

amplifier means for controlling the electric field provided by the field means; and

control means for selectively controlling the amplifier means based on instructions identifying the field means, the path module being connectable to at least one other path module to define a path, whereby each module in the path has a different address so as to facilitate independent control of different field means in the path.

27. A linear motor system, comprising:

a plurality of path modules, each path module comprising:

field means for providing an electric field;

amplifier means for controlling the electric field provided by the field means; and

control means for selectively controlling the amplifier means based on instructions identifying the field means;

each of the plurality of path modules being connected to at least one adjacent path module to define a path;

support means moveable along the path; and

communication means for communicating control information to each of the control means in the linear motor system, each control means being operative to control the respective amplifier means to selectively energize the field means associated therewith based on the control instructions received by the respective control means so as to control movement of the support means along the path.

28. A method for controlling a path module in a linear motor system, comprising:

receiving at a controller of the path module via a communications link control instructions from a motor controller; and

providing control data to an amplifier of the path module to selectively energize at least one armature winding of the path module based on the control instructions, the control instructions identifying the at least one armature winding.

29. The method of claim 28, further comprising receiving encoder data at the motor controller indicative of at least one of movement and position of a stage relative to a path provided by the linear motor system, the control instructions being provided based on the encoder data.

30. The method of claim 29, wherein the encoder data is received at the motor controller via the communications link.

31. The method of claim 29, wherein the encoder data is received at the motor controller via a wireless receiver operatively associated with the motor controller.

32. The method of claim 28, wherein the path module includes a plurality of armature windings and an amplifier associated with each of the plurality of armature windings in the path module, the method further comprising controlling each amplifier to control energization of an associated one of the plurality of armature windings based on the control instructions received at the path module from the motor controller.

33. The method of claim 32, further comprising addressing the control instructions for receipt by the controller of the path module so as to effect energization of at least one of the selected armature windings in the path module.